REMARKS

The Applicant thanks the Examiner for the detailed comments in the Office Action mailed January 4, 2010.

The Applicant has amended claims incorporating limitations omitted from both of the cited references, whether taken alone or in combination. In order to render a claim obvious, a single reference or a combination of references must teach or suggest every limitation of the claims to a person having ordinary skill in the art.

The claims, as amended, are nonobvious over a combination of Fay and Lea. Indeed, the Applicant points out that a combination of Fay and Lea not only does not render the claims, as amended, obvious, but also leads a person having ordinary skill in the art away from the limitations of the claims.

As discussed, Fay is primarily a research paper detailing the testing of an outer skin with insulating materials in a custom test apparatus. The apparatus does not test according to the full FAA standard, and is not testing the insulation as required by the FAA standard.

Thus, Fay fails to teach or suggest any insulation package positioned inside any intermediate space between any internal paneling and an external skin.

Indeed, Fay teaches a configuration that omits any internal panel, whatsoever.

Also, the Examiner cites the burn-through times reported in Fay, but these burn-through times are not representative of absolute comparisons with the FAA test. Instead, Fay uses its own testing protocol at the bottom of column 3:

The term "burn through time" as used in this specification and claims relates to a test method developed by Johns Manville International, Inc. and is based on an ASTM E-119 test rig. This ASTM test method is a standard one for fire tests of building construction and materials. The test sample

This testing protocol for building construction and materials provides only the same **relative** ranking of materials as the FAA test, but the burn-through times are not comparable to the FAA test on an absolute scale. *See* column 4:

Initial test results from this method showed that aluminum skin on its own achieved an approximate failure time of one minute. The standard configuration of three layers of 0.42 pcf (6.7 Kg/m^3) Microlite AA glass fiber blanket encased in Mylar film (System configuration I) yielded a result of 2.67 minutes to burn through. A system consisting of a layer of carbon fiber batting and two layers of fiber glass encapsulated in polyimide film (System configuration II) yielded a burn through time of 8.55 minutes in the above described Johns Manville International, Inc. test apparatus. These results show good relative ranking with the full scale FAA results for burn through time.

The results show a good "relative ranking" with the full scale FAA results for burn through time, but the absolute numbers cannot be compared.

One significant departure is that the modified procedure includes an aluminum skin, while the FAA standard does not (bold added for emphasis):

> *Burnthrough*
> This test method involves use of a kerosene burner apparatus, modified slightly from its configuration as used in other certification testing, that realistically simulates the thermal characteristics of a post-crash fire. The test stand and specimen are

> configured to simulate a small section of fuselage frames and stringers, with insulation material mounted over them. **Fuselage skin is not represented in this test, since the delay in burnthrough afforded by the skin is not directly related to the performance of the insulation.** The test is intended to measure the performance of the insulation itself. This test method is described in detail in proposed part VII to appendix F of part 25.

[from FAA standard]

Specifically, the FAA standard recognized that the delay in burn through of the various types and thicknesses of aluminum skins imparts a bias to results for testing burn through proofness of insulation packages. But Fay combines an aluminum skin with other layers for an external layered material that is not representative of an insulation package exposed to flames according to the FAA standard.

Also, the heat flux of Fay amounts to only 10-13 Btu/ft^2-sec compared to 16 Btu/ft^2-sec in the FAA standard. Fay uses a significantly lower heat flux than the FAA standard, and this will necessarily have a very significant effect on burn through time. The FAA standard allows for only a 0.8 BTU/ft^2-sec variation in heat flux. The heat flux of Fay is more than 0.8Btu/ft^2 less than the standard required by the FAA.

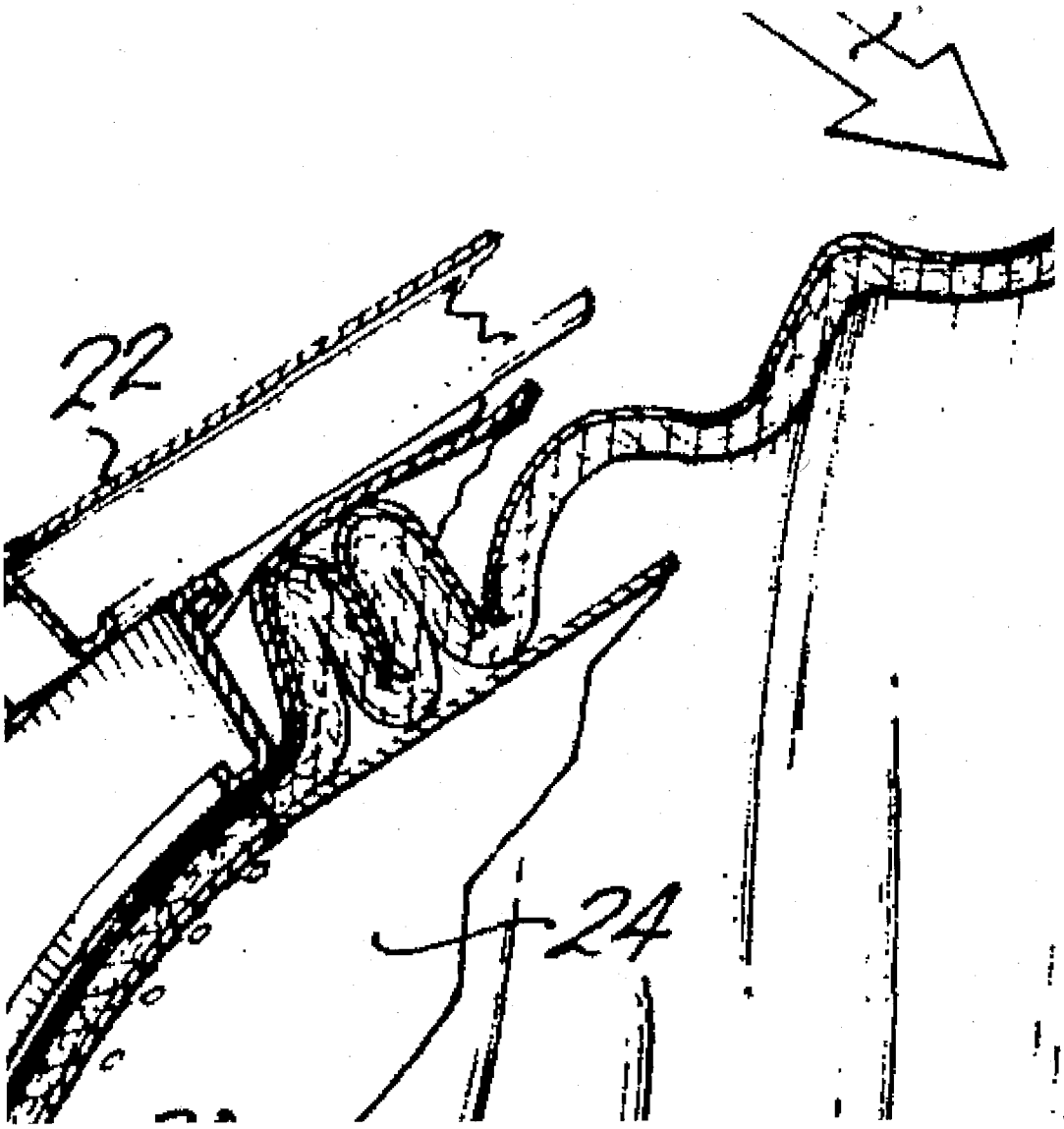
In the FAA standard, a flame is aimed and impinges directly on the insulation. In Fay, the aluminum skin is exposed to an opening in a furnace, which delays the burn through time for the shielded insulation on the opposite side of the aluminum sheet.

It is impossible for applicant to reproduce Fay's proprietary system in order to compare apples with apples, but it is safe to say that a much lower heat flux, shielding the insulation with an aluminum skin, and a non-impinging heat source will cause a much slower burn-through time compared to the FAA standard; therefore, Applicant objects to the Office Action's characterization of the burn through times in Fay as showing a burn through proof material under the full scale FAA testing regime. Indeed, Fay's test procedure includes items that were

rejected by the FAA in finding a standard that could properly measure burn through proofness of insulation materials.

Fay fails to provide a structure for insulation in an aircraft that is separate from the skin. No person having ordinary skill in the art would adopt the structure of Fay, which is merely adopted for testing of materials absent any practical insulation structure for an aircraft.

But Lea shows an aircraft wall-fuselage construction containing an accordion-pleated insulation material in a corrugated fashion:



The insulation in Lea is decidedly not contoured to the the contour of the aircraft's skin. Instead, Lea teaches that the unudulating, sinusoidal shape of the insulation provides essential advantages. Thus, a person having ordinary skill in the art would combine Fay with Lea in a way that maintains this undulating zigzag configuration of Lea such that the insulation is capable of being unfolded. (The Applicant further points out that the easy tear paper **16** is not insulation in Lea and is not actually involved in any flame retardancy, since it tears away, as shown above.)

A person having ordinary skill in the art would understand from Lea the importance of its corrugated structure, such as taught in column 3:

> accordion pleated, corrugated or zigzag fashion, and having the ability to expand laterally by unfolding throughout the limits imposed by its longitudinal stretched-out length, is disposed with the space between the inner and outer wall so that the successive pleated or corrugated insulation fire-stop material is positioned with its ridges to the inner wall and the outer wall alternately, whereby the ridges will run parallel with the frames so that further separation of the frames from one another will induce a foldout of the insulating fire-stop material thereby preventing an open connection between the interior and exterior of the aircraft.

This structure is an essential feature of Lea's invention and provides the object of Lea's invention, which is to prevent an open connection between the interior and the exterior of the aircraft.

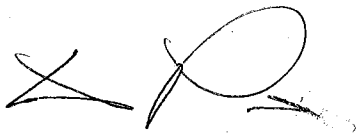
For this reason, a combination of Lea and Fay would necessarily adopt the advantages of the corrugations of the insulation of Lea with the improved materials of Fay, teaching away from the claims, as now amended.

If any additional fees are required, please charge these fees to deposit account 500864.

No new matter has been added by any of the amendments. Applicant respectfully requests entry of the amendments and allowance of all of the pending claims, which are now in condition for allowance.

Date: March 9, 2010

Respectfully submitted,



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